

5. DE CANDOLLE, A., 1845, *Prodromus Systematis regni vegetabilis* IX : 142-248, Paris.

6. SCHUMANN, K., 1895, *Bignoniaceae* in ENGLER A., *Die Natürlichen Pflanzenfamilien*, IV (3 B) : 189-252, 14 fig., Leipzig.

7. URBAN, I., 1916, *Ueber Ranken und Pollen der Bignoniaceen*; *Ber. Deut. Bot. Gesel.*, 34 : 743 pgs., 1 pl., Berlin.

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**NOTES ON « APODANTHES CASEARIAE » POIT.  
AND « PILOSTYLES CALLIANDRAE » (GARDN.) R. BR.  
(RAFFLESiaceae-APODANTHEAE)**

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In the present paper the male flowers of *Apodanthes caseariae* Poit. and *Pilostyles calliandrae* (Gardn.) R. Br. are described, since they are unknown to science till now. Moreover, *P. ingae* (Karst.) Hook. f. and *P. mexicana* (Brand.) Rose are considered as being identic with *P. calliandrae* (Gardn.) R. Br.

Examining the collections of *Rafflesiaceae* of the National Museum of Rio de Janeiro (R) and of the Herbarium on the Utrecht University (U) and the New York Botanic Garden (NY) the writer was able to find specimens of *Apodanthes caseariae* Poit. with male flowers, previously unknown for the whole genus *Apodanthes* Poit. The sample seen in R, collected by Dr. J. G. Kuhlmann in the State of Mato Grosso, Brazil, had well developed flowers and therefore was the basis for the description of the male ones. The specimens from U and NY, collected by Ynes Mexia in the Brazilian State of Minas Gerais, showed to have flowers with faded anthers and pollen shed.

The male flowers of *Pilostyles calliandrae* (Gardn.) R. Br. were also unknown up to date, but they could be detected in the material seen from R. Such specimens were gathered by Ernest Ule in the Brazilian State of Goiás.

Solms-Laubach's (1901) assumption that *P. calliandrae* (Gardn.) R. Br. is a synonymous of *P. ingae* (Karst.) Hook. f. was not credited by Ule (1815), who kept them as distinct species. According to him *P. ingae*, as well as *P. calliandrae*, grows on branches of a *Calliandra* Benth., not an *Inga* Scop., since the host, in every case, has twice pinnated leaves. It was impossible to have in hands the type of *P. ingae*, destroyed by war accidents in the Wien Natural History Museum, where it was deposited, but the comparison of the diagnosis and Karsten's picture (1856) with *P. calliandrae* samples permits to claim that they belong to the same

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species. In short, this last name is a legitimate one and has priority of publication over *P. ingae*. In the present author's opinion *P. mexicana* (Brand.) Rose is also a synonymous of *P. calliandrae* (Gardn.) R. Br.

The fact that *P. mexicana* have been described in its original diagnosis as possessing tepals with erose margins and that *P. calliandrae* is said to show tepals with entire margins cannot serve to make them distinct entities; indeed, samples of the latter, examined from R, have proved to bear tepals with margins ranging from almost entire to irregularly crenulate-dentate, which include notched forms.

Follow the descriptions of the male flowers of *A. caseariae* Poit. and *P. calliandrae* (Gardn.) R. Br., with a revision of the male blossoms diagnosis.

*Apodanthes caseariae* Poit. in *Ann. Sc. Nat. Iser.* T. III (1824), p. 422, Atlas tab. 26; R. Brown in *Trans. Lin. Soc. London*, XIX (1845), p. 247; S.-Laubach in *Mart. Fl. Bras.* IV, 2 (1878), p. 122, tab. 27 et in *Pflanzreich Heft 5*, IV (1901), p. 13; Warburg, *Pflanzenwelt I* (1913), p. 523, tab. 31 B; Ule in *Not. Bot. Gart. u. Mus. Berl. Dahlen VI*, Nr. 59 (1915), p. 292 et in *Ber. Deut. Bot. Ges.* 33 (1915), p. 468; Suessenguth in *Rev. Sudamer. Bot.* I, Nr. 3 (1934), p. 83; Harms in *Pflanzfam. Aufl. 2*, 16b (1935), p. 270.

Flores globosi vel subglobosi, primum albi demum rubelli, triverticillati. Verticillus inferus bracteis oppositis duobus, squamaeformibus, integris vel apice trilobatis; verticillus medianus calycinicus tetramerus, sepalis quattuor, margine integris vel irregulariter crenulatis, ovatis vel supra semisim attenuatis, basi ovario vel receptaculo adnatis; verticillus superus corollinicus tetramerus, petalis margine irregulariter crenulatis, ovatis superne rotundatis, inferne cordatis basi appendiculatis vel fere orbicularibus, basi asymmetricis, expansione laterali unica, cum lobis verticilli mediani alternis munitus. Flos foemineus-Ovarius semi-inferus ellipsoideus, unilocularis, loculo fere quadrangulato, ovulis per totam parietem loculi sparsis. Stylus distinctus vel semisim in discum transiens, vertici obscure quadrisulcatus. Discus petalis elapsis cicatricibus punctiformibus quattuor simplicibus munitus. Stigma annulare. Flos masculus-Columna genitalis brevis, pileo breve hemisphaerico corona pilis glandulosis circumdato praedita, infra pileum seriebus duobus quaeque antheris circa 19 annulatim dispositis, basi disco lato convexo margine angulato circumdata.

Habitat-Karouany, Guiana Gallica, Poiteau leg. anno 1898, typus in P exsiccata et spirito servatus, super *Caseariae sylvestris* Sw. vel speciei affinis ramos. Juruá fluminis regione, Juruamirim, Amazona, Brasil, Ule 6937a leg., aprili-junio 1901, super *Caseariae* sp. ramos, in B servatus sed bello destructus. Serra de Ponasa, Dep. de Loreto, Peru, Ule 6937b leg., martio 1903, super *Caseariae* sp. ramos, in B servatus sed bello destructus. Babilonia, Rio de Janeiro, Brasil, Glaziou leg., julio 1869, super *C. sylvestris* Sw. vel speciei affinis ramos, in B servatus sed



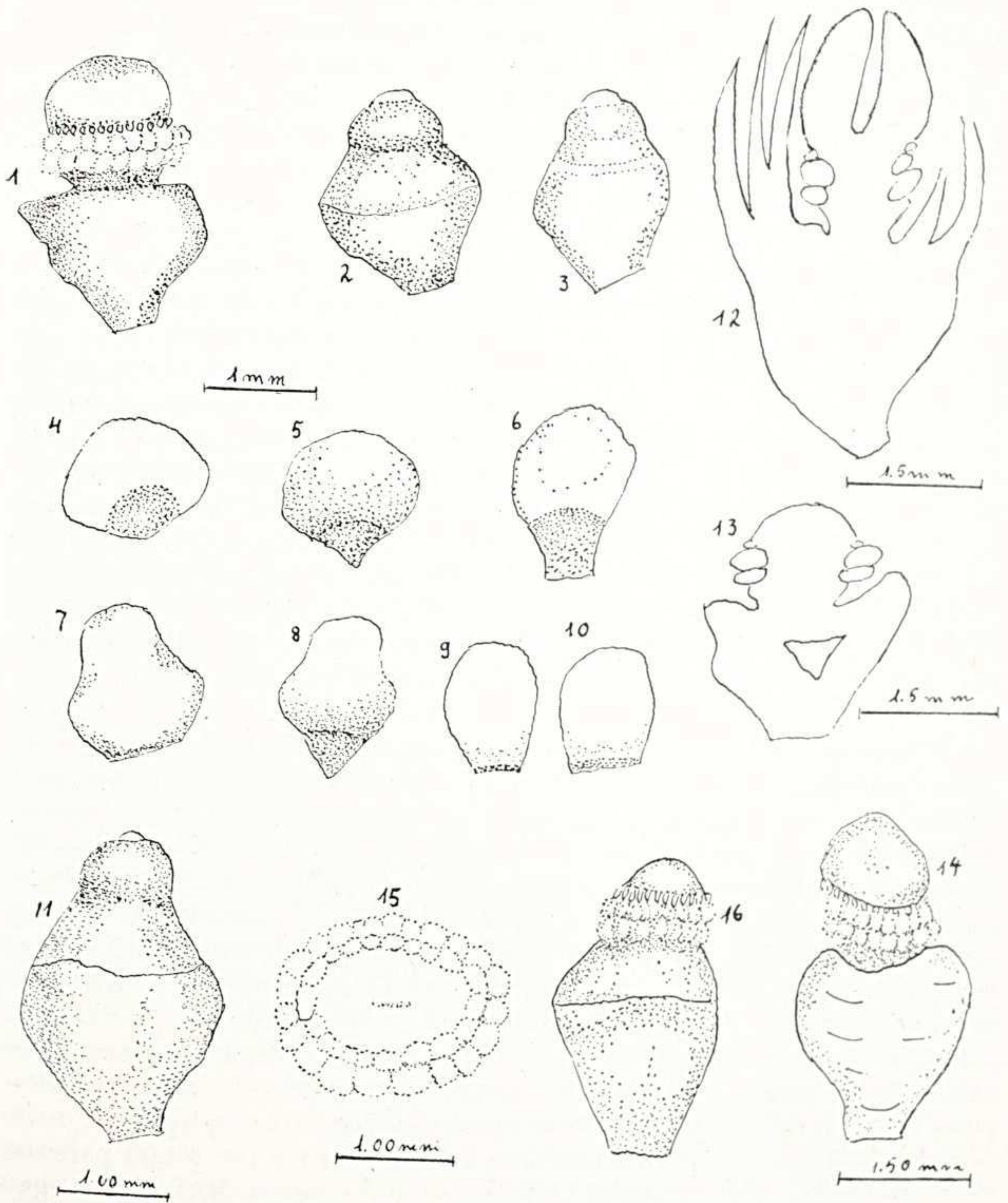


Fig. 1. — *P. calliandrae* (Gardn.) R. Br. — Specimen of Ny, Plants of Guatemala 57917, col. Standley : Fig. 1, male flower without tepals; figs. 2-3, female flowers without tepal; figs. 4-6, lower tepals; figs. 7-8, median tepals; figs. 9-10, superior tepals. — Specimens R50 085 female and 53086 (male), col. Ule : fig. 11, female flowers, without tepals 12,-13, male flowers longitudinal section; fig. 14, male flower without tepals. — *A. caseariae* Poit. — Specimen of R 53076, col. Kuhlmann: fig. 15, series of anthers; fig. 16, male flower without tepals.



bello destructus. Pao Lagarto, Brasil, super *C. sylvestris* ramos, in B servatus sed bello destructus. Venezuela (ex Suessenguth 1934). Iter Sao Miguel circa Corrigo Turba, Minas Gerais, Brasil, *Ynes Mexia* 4540 leg., super, super arborem 6 m altam in U sub n° 48879a et in NY servatus. Cataqui-iamani, Campo dos Urujás, Mato Grosso, Brasil, *J. G. Kuhlmann* 1964 leg., januario 1919, super *Caseariae* sp. ramos, typus floris masculi in R sub n° 53076 servatus.

*A. flacourliae* Karst. valde affinis. an eadem species.

*Pilostyles calliandrae* (Gardn.) R. Br. *Apodanthes calliandrae* Gardn. in Ic. Pl. 7, n. s. 3 (1844) : 655; *Apodanthes mexicana* Brandege in Zoe 5 (1908), p. 245; *Pilostyles calliandrae* (Gardn.) R. Brown in *Trans Lin. Soc. London* XIX (1845), p. 247; S.-Laubach in *Mart. Fl. Bras.* IV, 2 (1878), p. 126; Ule in *Ber. Deut. Bot. Ges.* 33 (1915), p. 474. *Pilostyles mexicana* (Brand.) Rose in *Contrib. U. S. Nat. Herb.* XII, 7 (1909), p. 263. *Froselia calliandrae* Karsten in *Nov. Acta Acad. Nat. Cur.* XXVI (1858), p. 922. *Sarna ingae* Karst. in *Linnaea* XXVIII (1856), p. 415 et *Nova Acta Acad. Nat. Cur.* XXVI (1858), p. 922, t. 65, fig. 16-21. *Pilostyles ingae* (Karst.) Hook. f. in *DC Prod.* XVII (1873), p. 116; S.-Laubach in *Mart. Fl. Bras.* IV, 2 (1878), p. 125. *Pilostyles ulei* S. Laubach in *Goebel Organogr. Pflanz.* III, Aufl. 3 (1900), p. 434; Endriss in *Flora* 91 (1902), p. 207, taf. 20.

Flores unisexuales e cupula corticis hospitis erumpentes, 1-3 mm alti et lati, globosi vel ovidei, verticillis tribus tetrameris, verticillo infero bracteis quattuor vel tres margine subintegris vel irregulariter crenulatis dentatis vel erosis, rubro-vinacei, ovati, basi ovario (flos fem.) vel receptaculo (flos masc.) adhaerentibus; tepali verticilli mediani rubro-vinacei, ovati, valvares, inter se tegentes latiore parte vel parum remoti, basi ovario vel receptaculo usque sub marginem disci adhaerentes, istinc liberi, sub illis verticilli superi terminati; tepali verticilli superi apicem versus albi, superne rotundati ad basin angustati, ad marginem disci insidentes, imbricati, sub apicem columnae vel styli terminati vel eos superantes. Flos foemineus-Stylus conicus, apice rotundato, stigmatate lato annulario, sessile super discum conicum superiore parte ovarii constitutum. Ovarius semi-inferus, angulatus unilocularis, ovulis 3-5 placentis parietalibus irregularibus vel irregulariter per totam parietem ovarii dispositis. Flos masculus-Columna genitalis media, basi disco angustato vel subnullo depresso circumdata, diametrum pilei aequante vel parum ampliore. Pileus latus, altus, apice rotundato, margine corona pilis glandulosis pyriformibus munitus, circa dimidia parte columnae vel amplius constituens. Antherae duobus seriebus completis vel incompletis raro in una serie incompleta, quaeque usque ad 22 antheris munita.

Habitat. — Inter Lage et Tocantins fluminem, Brasil, *Glaziou* 22030a leg. super *Calliandra brevipedis* Benth. ramos, in B servatus sed bello destructus. Remanso, S. Francisco flumen, Bahia, Brasil, *Ule* 7178 leg., januario 1907, super *C. calingae* Harms ramos, in B servatus sed



bello destructus. *Ibidem*, *Ule* 7179 leg. januario 1907, super *C. lelopodae* Benth. ramos, in B servatus sed bello destructus. Goiás, Brasil, *Gardner* 3639 leg., anno 1840, super *Calliandrae* sp. ramos, *typus* in K servatus. Serra de Santa Barbara, Goiás, Brasil, *Ule* 476 leg., januario 1893, super *Calliandrae* sp. ramos in R servatus sub n° 50095. *Ibidem*, *Ule* 476a leg. *typus* floris masc., januario 1893, super *Calliandrae* sp. ramos in R servatus sub n° 53086. *Ibidem*, *Ule* 476b leg., decembri 1892, in R servatus sub n° 53087 servatus. Goiás, Brasil, *Ule* s. n., januario 1893, in R servatus sub n° 53088. Barranca de Tenampa, proximitate Zacuapan, Estado de Vera Cruz, Mexico, *C. A. Purpus* 2207 leg., super *Calliandrae* sp. ramos, anno 1906 (*typus Apodanthes mexicanae* Brandegee) in NY servatus. Iter inter Chimaltenango et San Martin Jilotepeque, Dept. Chimaltenango, alt. 1500-1900 m, Guatemala, *P. C. Standley* leg. (Plants of Guatemala 59598, Sewell Expedition of Field Mus. Nat. Hist.) anno 1938, in NY servatus. Hacienda Monteserrate, Chiapas, Mexico, *C. A. Purpus* leg. (Plantea Mexicanae Purpusianae 9153) anno 1923, in NY servatus. Cauca fluminis valle, proximitate civitatis Popaya, Colombia, *Karsten* leg. (*typus Sarna ingae* Karst.) super *Ingae* sp. ramos fide Karsten et *Calliandrae* sp. ramos fide Ule, in W servatus sed bello destructus. Goiás, Brasil, *Gardner* leg. Goiás, Brasil, *Ule* n°s 3094, 3995, 3091, 3096, 3109, 3093 leg., in B servatus sed bello destructus. Goiás, Brasil, *Glaziou* 22027, 22028, 22029, 22020 leg. in B servatus sed bello destructus.

#### LIST OF ABBREVIATIONS

- B — Botanisches Museum, Berlin-Dahlem.  
K — Kew Botanic Gardens.  
NY — New-York Botanical Garden, U. S. A.  
R — Museum Nacional, Divisão de Botânica, Rio de Janeiro.  
U — Botanisch Museum en Herbarium, Utrecht.  
W — Naturhistorisches Museum, Botanische Abteilung, Wien.
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